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RECOGNITION OF BEDS OF TERTIARY AGE IN OUR STATE.

BY CHARLES KEYES.

Iowa has been repeatedly and so thoroughly planed off and worked over by continental glaciers of no less than five great ice-invasions that it could be hardly expected that any remnants of the softer pre-glacial formations, if there ever were any deposited within the state's boundaries, would survive. Moreover, the state is now everywhere so deeply covered by the several till-sheets and the vast eolian soil-mantles as to effectually conceal all traces of the existence of pre-glacial deposits which we ordinarily refer to the Tertiaries.

In spite of these unfavorable conditions I have never, in the twenty-five years during which I have been more or less closely connected with geological work in the region, given up hope of some day having disclosed true Tertiary beds of some kind or other. Further, it has been surmised that certain of the numerous sections which had been usually referred wholly to the drift were in reality partly of earlier origin.

Several years ago opportunity was offered to examine rather carefully, with this idea in mind, some of the sections of central South Dakota. In tracing the formations eastward certain of the sands, known to be Tertiary in age, were found to extend in broken patches nearly to the Iowa line.

During the past year it was possible to make comparison of the undoubted Tertiary beds mentioned and sundry isolated bodies of lithologically similar character but which reclined beneath the great till-sheet of western Iowa. One of these great beds in particular deserves especial mention. It is rather fully described by Bain in his report on the geology of Woodbury county, so that no further account of its characters and peculiarities need be here reiterated. So remarkable and distinctive in its stratigraphic relations was this bed that the author mentioned designates it the Riverside sands. With the evidence which Bain records and with the later data received there appears to be but little doubt that this and other similar deposits of the region are really remnants of a once widely spreading formation which was laid down in Tertiary time. It is not at all unlikely that this deposit represents Mid-Tertiary, or Miocene deposition.